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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ROSATI, BRANDON MICHAEL

ART UNIT

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3744

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/519,709	Applicant(s) EMRICH ET AL.	
	Examiner BRANDON M. ROSATI	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/2/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because it is unclear as to what constitutes the "approximate shape of a bone." It is unclear as to exactly what bone shape applicant is referring to because bones have a variety of shapes (i.e. skull bone, wrist bone, fibula, tibia, etc...) For the purposes of this examination, the examiner has determined the approximate bone shape to be that of a bone with an approximate long straight section with two approximately round bulges on the end.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-8, 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Groves et al. (International Pub. WO 01/98723 A1) in view of Santala et al. (U.S. Patent No. 3,953,176).

Regarding claims 1 and 2 Groves et al. disclose as shown in Figure 10c, a first collecting vessel with a media connection (i.e. inlet) (233), and a second collecting vessel with a media connection (i.e. outlet) (234), which are connected to one another by heat exchanger element (i.e. tubes) (266) for a first medium. It is noted that 233 and 234, respectively, show a combined connector and collection vessel, which are referred to by the same reference number. In addition, they show the inlet and outlet for the first fluid media. Also, Groves et al. disclose a housing (220), which allows a second medium to pass through the interior and has two media connections (i.e. flange) (226). Furthermore, Figure 2 shows a collecting vessel accommodated in the interior of the housing at a distance from an inner wall of the housing. It is noted that the flange is part of where the second media enters the housing. Furthermore, the housing (220) completely

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accommodates both collection vessels within its interior (as per claim 2) (Figures 10c, 11, and 12 and pages 16-17). Groves et al. does not disclose the housing being in the approximate shape of a bone. However, Santala et al. disclose a housing in the approximate shape of a bone (Figure 7). Hence, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the teachings of Groves et al. with the housing in the shape of a bone of Santala et al. because the bone shape housing would allow for better fluid flow within the housing and thus increase heat transfer.

Regarding claim 3, Groves et al. discloses a first second media connection (226), with a first collecting vessel (233) located in between the first second media connection (226) and the heat exchanger element (266). Furthermore, Groves et al. discloses the other second media connection (226), with a collection vessel (234) located in between the other second media connection (226) and the heat exchanger element (266) (Figures 10c and 11).

Regarding claim 4, Groves et al. discloses a first medium entering collection vessel (233) (portion within the housing), flowing in a transverse direction, particularly at a right angle through heat exchanger element (266) and exiting through collection vessel (234) (portion within the housing) (Figure 10c).

Regarding claim 5, Groves et al. discloses second media connections (226) pointing in the same direction as the flow, which is passing through heat exchanger elements (266) (Figure 10c).

Regarding claim 6, Groves et al. discloses first media connections (portions outside of the housing of 233 and 234) that point in a transverse direction, in particular at a right angle with respect to the flow of the first medium through the heat exchanger element (266) (Figure 10c).

Regarding claims 7 and 8, Groves et al. discloses first media connections (portions outside of the housing of 233 and 234) that point and are aligned in the direction of the longitudinal extent of the collection vessels (portion within the housing of 233 and 234) (Figure 10c).

Regarding claim 13, Groves et al. discloses all the structural features (see claim 1 above), which would allow for the heat exchanger to function as a counter flow heat exchanger. It is noted that the second media can enter or exit the heat exchanger through either of the connections (226). If the first media enters via collection vessel (234) and exits through collection vessel (233), the second media traveling through the heat exchanger from connection (226) closest to the vessel (233) and exiting the connection (226) near the vessel (234) the heat exchanger would function as a counter flow heat exchanger (Figure 11).

Regarding claim 14, Groves et al. discloses all the structural features (see claim 1 above), which would allow for the heat exchanger to function as a counter flow heat exchanger. It is noted that the second media can enter or exit the heat exchanger through either of the connections (226). If the first media enters via collection vessel (234) and exits through collection vessel (233), the second media traveling through the heat exchanger from connection (226) closest to the vessel (234) and exiting the connection (226) near the vessel (233) the heat exchanger would function as a co-current heat exchanger (Figure 11).

Regarding claims 15 and 16, MPEP 2114 clearly states "While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus **must be** distinguished from the prior art in terms of structure rather than function. Because claims 15 and 16 fail to further limit the apparatus in terms of structure, but rather only recite further functional

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limitations, the invention as taught by Groves et al. is deemed fully capable of performing such function (i.e. being utilized as a charge air cooler for motor vehicles or utility vehicles).

Regarding claims 17 and 18, MPEP 2114 clearly states "While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus **must be** distinguished from the prior art in terms of structure rather than function. Because claims 17 and 18 fails to further limit the apparatus in terms of structure, but rather only recite further functional limitations, the invention as taught by Groves et al. deemed fully capable of performing such function (i.e. laminar flow through the heat exchanger).

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Groves et al. (International Pub. WO 01/98723 A1) in view of Santala et al. (U.S. Patent No. 3,953,176) in further view of Hayashi et al. (U.S. Pub No. 2003/0010479).

Regarding claim 10 it is noted that the combined teachings of Groves et al. and Santala et al. disclose all the claimed limitations except having the walls of housing bearing snugly against the heat exchanger element. However, Hayashi et al. disclose walls of housing bearing snugly against the heat exchanger element (11) (Figure 1A). Hence, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the combined teachings of Groves et al. and Santala et al. with the housing bearing snugly against the heat exchanger element of Hayashi et al. because this would allow for increased efficiency within the heat exchanger.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Groves et al. (International Pub. WO 01/98723 A1) in view of Santala et al. (U.S. Patent No. 3,953,176) in further view of Kale (U.S. Patent No. 6,659,170 B1).

Regarding claim 11 it is noted that the combined teachings of Groves et al. and Santala et al. disclose all the claimed limitations except a section of the housing forming a housing section for a fan. However, Kale discloses a housing for a fan (26) within the main housing (11) (Figure 1 and column 5, lines 35-45). Hence, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the teachings of Groves et al. with additional housing for the fan of Kale because the fan would increase the efficiency of the heat exchanger.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Groves et al. (International Pub. WO 01/98723 A1) in view of Santala et al. (U.S. Patent No. 3,953,176) in view of Kale (U.S. Patent No. 6,659,170 B1) and further in view of Guatelli et al. (French Pub. No. 2605685).

Regarding claim 12 it is noted that the combined teachings of Groves et al., Santala et al. and Kale disclose all the claimed limitations except the fan housing embodied as a helical housing. Guatelli et al. disclose a housing for a helical fan. (Figure 1). Hence, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the combined teachings of Groves et al., Santala et al. and Kale with the helical fan housing of Guatelli et al. because the helical shape of the housing would increase the fan efficiency.

Response to Arguments

7. Applicant's arguments, page 5 filed on 4/2/2008, with respect to 35 U.S.C. 112, second paragraph have been fully considered and are persuasive. The rejection of claims 1-14 based on 35 U.S.C. 112, second paragraph has been withdrawn.

8. Applicant's arguments filed 4/2/2008 have been fully considered but they are not persuasive.

In response to applicant's arguments (page 5, line 17- page 7, line 2) that the reference does not teach the housing is in a shape of a bone when viewed in longitudinal section or in a shape that is approximate to a bone shape. In response to applicant's arguments, the examiner disagrees as Santala et al. has a housing that is in the shape of a bone. The teachings of Groves et al. disclose all the claimed limitations except the housing being in the shape of a bone. Santala et al. was brought in to utilize the shape of the housing only, not the detailed of the catalytic converter, which is housed within the bone shaped housing. It would be obvious to one of ordinary skill to utilize the bone shaped housing of Santala et al. since this shape is well known in the art as demonstrated by Santala et al. Therefore, the applicant's arguments are unpersuasive and the rejection is maintained.

In response to applicant's arguments (page 7, line 19- page 8, line 6) that the Groves and Santala et al. references do not teach laminar flow of a medium. In response to applicant's arguments, the examiner disagrees as Groves et al. has flow through the heat exchanger. However, the fact that the claim requires laminar flow fails to further limit the apparatus in terms of structure, but rather only recite further functional limitation. There is no teaching in Groves et al. that suggests that a laminar flow could not be utilized. Furthermore, although the shape does play a factor in causing the flow to be laminar or turbulent, another major factor is the flow of the fluid through the device. One of ordinary skill in the art would know to vary the flow depending on what shape the housing was in order to achieve the desired flow (i.e. turbulent or

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laminar) through the device.. Therefore, the applicant's arguments are unpersuasive and the rejection is maintained.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRANDON M. ROSATI whose telephone number is (571)270-3536. The examiner can normally be reached on Monday-Friday 8:00am- 4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler or Frantz Jules can be reached on (571) 272-4834 or (571) 272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BMR

4/29/2008

/Cheryl J. Tyler/

Supervisory Patent Examiner, Art Unit 3744